The additional benefits of tail risk hedging

Protecting your downside benefits your investment in two very different ways, apart from the obvious protection against losses.

The Power of the Tail

Sometimes terrible events happen that have an impact on society and markets. One of these terrible events was '9/11', where almost 3000 people lost their lives directly. The stock market was closed for a week and the Dow Jones Index opened 7,1% lower on the first day of trading and was down 14% by the end of the week[1]. The market didn't see this coming, didn't price it in and didn't know how to re-price the risk.

And it is not just the financial markets that have struggled to come to terms with the new reality. After 9/11, thousands of people were indirectly injured or killed as a result of this terrible event. We never hear about it, we never read about it, what kind of catastrophe are we talking about? People were afraid to fly, so they got into their cars to travel. The deaths occurred because (long distance) driving is about 106 times more deadly than flying[2]. If we take into account the behavioural response of the whole world, many more people died as a result of irrational responses than died directly as a result of 9/11.

Humans as a species are bad at dealing with risk. Our perception of risk has evolved to deal with potential snakes, lions and bears, not financial collapse. Financial collapses don't happen often, but solid stock market corrections do. Almost a quarter of the time, the stock market is in a bear market, where the stock market is down at least 20% from its recent peak.

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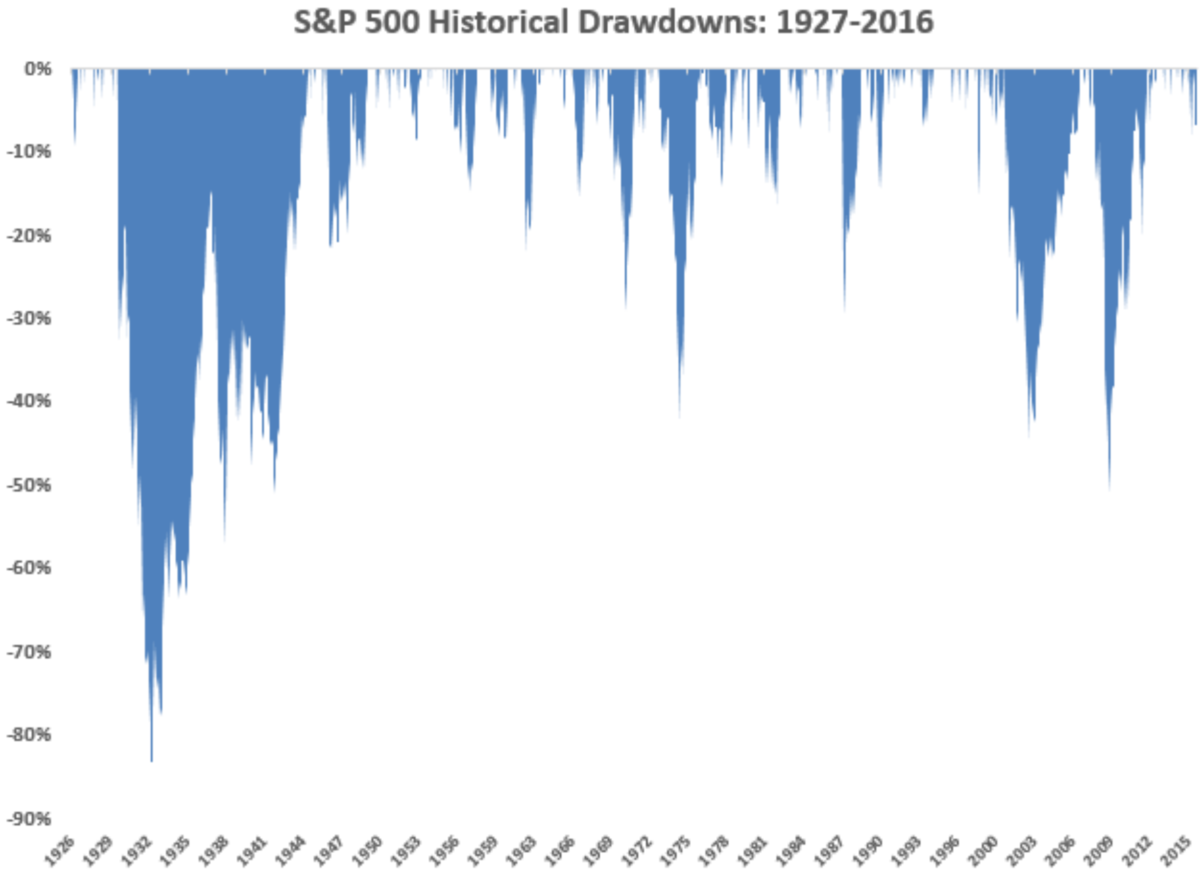
[1] https://www.investopedia.com/financial-edge/0911/how-september-11-affected-the-u.s.-stock-market.aspx#:~:text=On%20the%20first%20day%20of,during%20the%20global%20coronavirus%20pandemic).

[2] According tot he US National Safety Council



Source: B. Carlson, Bourbon Financial Management (2018)

9/11 is an example of a 'black swan event', a concept reinvented by Nassim Taleb, a trader turned thinker who took David Hume's induction problem and applied it to our modern world. Black swan events are unpredictable, large-scale events with significant consequences that are rationalised in hindsight. The book was published in 2007, just before the Great Financial Crisis and brought him instant fame. The argument creates a world full of risks. In addition to black swans, we also have grey swans, known risks. The swine flu pandemic is an example of a grey swan (a pandemic is 'normal' if you look at longer-term history).

As the world becomes more interconnected, a half market crash will cascade into a full crash. In mathematical terms, the probability of a big crash is greater than the probability of a medium crash (in finance we call this fat tails). Moreover, the world is getting riskier. Due to the confluence of a changing geopolitical landscape, exponential innovation, climate risks, etc., the world is getting riskier, not safer. We hardly need to convince anyone of that. The bottom line is that the world has always been unpredictable and risky, and is becoming increasingly so. Any investor who does not think about this, is not really doing his job.

Diversification vs. tail risk hedging

Ask your banker and the main solution you will hear is 'diversification'. The idea that if you don't put all your eggs in one basket, everything will be fine. The problem is that we have just concluded that medium crashes are less likely; if something goes down, it takes everything down with it. The interconnectedness of the financial markets (and the world) has made a local crash a theoretical impossibility (just ask the central bank that has to step in after every little market wobble). Sure, some stocks fall less, but they are all in the same boat.

Apart from this interconnectedness, proving diversification is problematic. Let's say you want to diversify against inflation. The general answer is: buy gold. But if you look at gold's overall track record as an inflation hedge, it does not perform well at all[3]. The image of gold as an inflation hedge comes from the inflationary period of the 1970s, when both inflation and gold shot up (a much better inflation hedge is the stock market as a whole). Diversification hedges are always an assumption. The standard crash diversification is bonds versus equities. The argument is that if the stock market goes down, interest rates will go down, so bond prices will go up, limiting your overall losses. A truism for the last 40 years, but what about before that? This is where the thesis breaks down. For the past 40 years we have been in a world of falling interest rates, and if that were to reverse, and it certainly could, both could easily fall together.

So how do you solve the problem? By doing what people have been doing for thousands of years: buying insurance. If you run the risk of your house burning down and ruining you, you take out insurance. So why shouldn't we do the same with the stock market? Over thousands of years, financial markets have evolved into a system for either mitigating or insuring the risks of the business world through futures and options. We can use options to insure against large losses for a small premium. As with normal insurance, the more risk you want to cover, the higher the premium. Fortunately for us, we only need to insure against the big crashes, as the medium crashes are less likely in finance (see above). We can deal with the small corrections, but the big crashes we hedge with far out of the money put options. We do not know when a market crashes (nobody does), but we do know that the market crashes from time to time. We take out insurance against this at a long-term cost of 3%.

The benefits of market crash insurance

The immediate benefit is clear. If the market crashes, we are insured. The two most important investment rules of the greatest modern investor, Warren Buffett, are:

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[3] https://www.forbes.com/advisor/investing/gold-inflation-hedge/

Rule #1: Don't lose money. Rule #2: Don't forget rule #1".

If you lose 50% of your portfolio's value, you need a 100% return to get it back. This is well known in finance and is one of our core principles. What is less well known, is that this means that insurance is much more beneficial than you think.

Consider the following scenario:

You invest 100,000 in the market with an expected return of 13%. The market has a 10% chance of falling by 20%. The cost of insuring against that fall is 3%. Would you buy the insurance? For the mathematically inclined, we can calculate the cost of the insurance as (90% x -3000)+(10% x 17,000)= -1000. In other words, the insurance will cost us 1000 on average, not a great choice it seems. For the normal (less mathematically inclined), see the table below to get an intuitive view.

In this case, when we invest, we have 1 of the 10 options or the insured one:

possible outcome		Result	
1	20% loss	€	80,000
2	13% gain	€	113,000
3	13% gain	€	113,000
4	13% gain	€	113,000
5	13% gain	€	113,000
6	13% gain	€	113,000
7	13% gain	€	113,000
8	13% gain	€	113,000
9	13% gain	€	113,000
10	13% gain	€	113,000
Insured option:		**€**	**110,000**

Looking at these results, most people intuitively choose the uninsured investment. This is also shown by the cost of loss versus the cost of insurance.

Total loss:	€	- 20,000	(1x -20%)
Total insurance:	€	- 30,000	(10x -3%)

But this is the wrong choice. When you invest, you are not making one decision, you are making many. One outcome affects your future options. If there is a 10% risk of loss, over 10 years it is actually quite likely that you will experience that loss, as shown by the average return of both options.

	Average return:
without insurance	9,7%
with insurance	10,0%

Although the argument is even stronger when you delve deeper into the mathematics[4], we hope by now it is now clear. The smart way to invest is to hedge the tail. You take some potential annual gains to make sure you are protected against the occasional big crash, thereby increasing the long-term average return.

The double benefit for returns

In addition to the logical reasons for hedging tail risk outlined above, there are two other benefits of hedging tail risk that are often neglected in the investment industry.

Benefit 1: Increased risk-taking

Because you are protected against the big crashes, you are free to take more risks with your money. You don't have to worry about asset class diversification and are free to find the best performing investments in any sector (or asset class). This argument becomes clear when analysing the standard diversification used in the banking world, that of 60% shares and 40% bonds (the 60/40 portfolio). This portfolio results in a little less than half of your portfolio being invested in an instrument that doesn't return much if there is no market crash. Over the last 10 years, this loss has been very clear, with the S&P 500 Index returning an average of 15.6% and the US 10-year Treasury yielding only 3.85%. We don't have to crunch the numbers to see that a max. 3% premium would have easily resulted in higher returns (and lower or no losses during the crashes, as a 40% allocation doesn't fully make up the loss).

Benefit 2: Dry powder when you need it

The final advantage is the timing of the payout. When your home fire insurance pays out, it (usually) does not take house prices into account. Your fire insurance is often indexed annually, but the increase tends to be below real house price increases (and what about a payout just before the indexation). If you're lucky, you'll be able to rebuild the house for the amount insured. (In practice, this isn't a big problem as it's not very often that the house needs to be completely rebuilt).

Our tail risk insurance, on the other hand, pays us at the best possible time: when market prices are at rock bottom. By definition, we collect our insurance payout (by selling the put options at high profits) when the market crashes. This is when great companies are cheap because the whole market is going down indiscriminately. If we had to pick the time when an investor needs the most cash

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[4] For further reading: Research *The Saint Peterburg Paradox* (recommended: book *Safe Haven: Investing for Financial Storms* from Mark Spitznagel, Nassim Taleb's investment partner)

to invest, it would be in the middle of the crisis, and that is when the insurance payout is received.

Conclusion

Any smart investor is more aware of the risks than the rewards. By hedging the tail risk, an investor can focus on picking great companies, knowing that he/she will get a higher return on average. And, as an added benefit, you automatically get a pile of cash when the greatest number of great companies are available at cheap prices. In our view, this is a no-brainer. And it lets you sleep well at night, which is something you cannot put a price on.

"*Ultimately, nothing should be more important to investors than the ability to sleep soundly at night.*" — Seth Klarman

Taleb, N.N., 2007. The Black Swan: The Impact of the Highly Improbable. Penguin, London

Spitznagel, M. (2021). *Safe Haven: Investing for Financial Storms*. John Wiley & Sons.